A STUDY TO ASSESS THE EFFECTIVENESS OF GUIDED IMAGERY IN TERMS OF REDUCTION OF PAIN AND STRESS AMONG CANCER PATIENTS ADMITTED AT INTERNATIONAL CANCER CENTER.

A DISSERTATION SUBMITTED TO THE TAMIL NADU DR.M.G.R.MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILLMENT FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

OCTOBER -2015

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BONAFIDE CERTIFICATE

This is the bonafide work of **Ms. Giftshia Sheny** MSc (Nursing) II year student from Nehru Nursing College, Vallioor, submitted in partial fulfillment for the Degree of Master of Science in Nursing under the Tamilnadu Dr. M.G.R Medical University, Chennai.

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CERTIFICATE BY THE GUIDE

This is to certify that the dissertation entitled **"A study to assess the effectiveness of guided imagery in terms of reduction of pain and stress among cancer patients admitted at International Cancer Center"** is a bonafide research work done by **Ms. Giftshia Sheny,** in partial fulfillment for degree of M.Sc Nursing under the Tamilnadu Dr. M.G.R. Medical University, Chennai.

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DECLARATION

I hereby declare that the present dissertation titled **"A study to assess the effectiveness of guided imagery in terms of reduction of pain and stress among cancer patients admitted at International Cancer Center"** is the outcome of the original research work undertaken and carried out by me, under the guidance of Mrs.Ilaiyabharathy, Msc.(N) Assistant Professor Medical Surgical Nursing, Nehru Nursing College, Vallioor.

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ABSTRACT

A study to assess the effectiveness of guided imagery in terms of reduction of pain and stress among cancer patients admitted at International Cancer Center. The Objectives were;

1. To assess the pre-test and post-test level of pain among cancer patients.
2. To assess the pre-test and post-test level of stress among cancer patients.
3. To determine the effectiveness of guided imagery in terms of reduction of pain among cancer patients.
4. To determine the effectiveness of guided imagery in terms of reduction of stress among cancer patients.
5. To find out the association between level of pain and stress with their selected demographic variables.

The Following Hypotheses were set for the Study:

H1: Patients with cancer pain will experience significant reduction in pain with exposure to Guided Imagery than pre-intervention phase.

H2: Patients with cancer will experience significant reduction in stress with exposure to Guided Imagery than pre-intervention phase.

H3: There will be significant association between the pain score and selected demographic variables.

H4: There will be significant association between the stress score and selected demographic variables

Review was done on management of Pain and Stress among Cancer patients and effectiveness of Guided Imagery in terms of reduction of pain and stress among Cancer patients. The conceptual framework for this study was based on Callista Roy Adaptation Model. Research design for the study was quasi experimental one group pre-test post-test time series design and convenient sampling technique was used and the sample size was 30. Numerical Pain Rating Scale and Stress Assessment Scale was used to assess the pain and stress before and after intervention.

The study finding revealed that on the first day, the post-test mean pain score was 2.73 which was lower than the mean pre-test score level 6.43. The obtained 't' test value 25.51 was significant at 0.05 level This data showed that there was significant reduction of pain score in the post-test in the first day.

In the second day the mean post-test pain score level was 2.50 which was lower than the mean pre-test pain score level of 5.96.The obtained t value for the test was 24.46 at 0.05 level of significance.

In the third day the mean post-test pain score level was 1.80 which was lower than the mean pre-test pain score level of 5.26.The obtained t value for the test was 27.86 at 0.05 level of significance.

There was no association between the pretest level of pain score and selected demographic variables like age, sex, religion. There was an association between level of pain and demographic variables such as duration of illness, stage of cancer, mode of treatment.

On the first day, the pre-test mean stress score was 22.33 and on the 4th day the post-test was 10.20. Calculated 't' test value 13.61 was significant at 0.05 level This data showed that there was significant reduction of stress score .

There was an association between the level of stress and the demographic variables such as stage of cancer, mode of treatment. There was no association between the level of stress and demographic variables such as age, sex, religion, duration of illness.

Based on the findings of the study recommendations for future study are as follows:

The study can be conducted by using a large population to generalize the findings. The effectiveness of Guided imagery can be evaluated for other conditions like reducing side effects of chemotherapy, anxiety level. Study can be replicated with subjects from different settings. A comparative study can also be done between the effectiveness of various non-pharmacological measures for reducing cancer pain.

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CHAPTER-1
INTRODUCTION

"Life threatening disease will affect the wellbeing of humanity"

-Hershley.

Cancer is one of the second largest killer diseases next to heart diseases. It is a disease process that begins when an abnormal cell is transformed by a genetic mutation of the cellular DNA and begins to proliferate abnormally (Brunner and suddarth's).

Cancer has afflicted humans throughout the recorded history. From the dawn of history people have written about cancer. The origin of the word 'Cancer' was credited to the Greeks by the Father of Medicine-Physician Hippocrates 460-370 B.C. Since then, Physicians and scientists have come up with many theories. But the discovery of DNA structure by James Watson Crick has paved the way for the modern cancer science. (National accounts 2000).

Today cancer is the single most incapacitating disease, posing a severe threat to the wellbeing of humanity. Cancer afflicts all communities worldwide. Approximately 10 million people are diagnosed with cancer and more than 6 million die of the disease every year and 24.6 million people are alive with cancer. According to world Cancer report 2003, Global Cancer rate would increase by 50% to 15 million by 2020. (Park 2007).

According to World Health Organization (WHO) globally, Cancer is one of the top ten leading causes of death. It is estimated that 7.4 million people died of cancer in 2004 and if current trend continue, 83.2 million more will have died by 2020. Around 8, 50,000 new cancer cases are diagnosed in India every year. Among them there are 4, 41,405 female patients and 3, 93,948 are male, affected with cancer. Lung cancer is the most common cause of cancer related death in men and the second most common illness among women [after breast cancer], which is responsible for 1.3 million deaths worldwide annually (World health Statistics 2008).

Various organ systems may be involved in cancer illness and symptoms differ accordingly to system. Pain is the most common and most feared symptoms of cancer. According to the cancer information Network, majority of cancer patients experience pain and approximately 50% of people experience severe pain at some time during their course of disease.(Ferrell and Griffith,1994).

Cancer pain is a complex, changing symptom which is the end result of pathophysiology. It involves inflammatory, neuropathic, ischemic, and compression mechanisms at multiple sites. It is a subjective, heterogeneous experience that is modified by individual pain tolerance, mood, expectation, and culture.(Health Journal,2000).

Pain may occur in more than one site over half of patients and may have different severity. Such complexity can be challenging and require a truly multidisciplinary approach. Management of cancer pain can be challenging for the very young or old, for patients with medical problems such as heart disease, respiratory disease, renal or liver compromise and for those with mental health issues. Often these factors may present in combination and generate demanding clinical problems. (Churchill, 2010).

The modern world, which is said to be a world of achievement, is also a world of stress. One finds stress everywhere right from the time of birth till the last breath. The psychosomatic disorders that arise from prolonged exposure to stressful conditions are long term psychological consequences such as tension, pain, depression, irritability, sleep disturbance and anxiety (Pestonjee, 2005).

Stress can exacerbate or be the result of pain and fatigue and be the two most prevalent symptoms in cancer patients. Stress not only interferes with the patient's daily activities but also with the healing process. (Kurta, 2008).

Aspects of stress response itself may also develop into chronic conditions like increased blood pressure, stress ulcers. When new stressors are superimposed on existing illness, they may interfere with the body's ability to cope with that illness, which may then become more severe or overwhelming. (Sandrew,2008).

Psychosocial stress can lead to either decreased resistance to disease processes or increased susceptibility to disease agents. The more numerous and difficult the life changes that are encountered, the greater the likelihood of adaptive failure, leading to disorganization or exhaustion.(Rafael,2009).

As chronic conditions increase, health care broadens from cure and eradication of disease to the prevention or rapid treatment of exacerbation of chronic conditions. Nursing care is now encouraged playing a prominent role in the current focus on management of chronic illness and disability (Brunner and suddarth's 2008).

In many chronic conditions, pain and fatigue and stress are the common associative symptoms. Chronic conditions have a greater effect on the quality of life. Hence it points out that there is an additional challenge for Nurses to deal with more than one chronic disease at a time. (Bayliss, 2003).

Cancer patients are affected physically as well as psychologically which affects their quality of life. Increased pain and stress may interfere with their daily activities. Better adaptation to such stressful situations could be made possible with integrated management. Integrated approach to cancer care includes the best of the orthodox medical treatments and the best evidence- based supportive complementary therapies. Complementary therapies help to reduce the distress of symptoms and side effects associated with cancer and its treatment as well as psycho emotional aspects of coping with this traumatic experience. (Hood 2009)

Guided imagery is an important alternative to pharmacotherapy, which has greater safety to control stress and pain. It is particularly suited to the current health care climate, where patients are provided with cost effective mind and body medicine and empowering approaches to health care. Study results suggest that patients with greater visualization abilities may be more likely to experience pain reduction when using guided imagery. (Lambert, 2004).

Guided imagery technique is based on the idea that the mind can influence the functions of the body. Proponents suggest that imagery can have a direct effect on both the endocrine and nervous systems, which leads to changes in the immune system function. Guided imagery is used to promote relaxation, reduce stress and pain and help the mind influence the body in positive ways. (Stevens,2008).

Guided Imagery has also been called the language of the mind. It is a language that the mind can use to talk to the body, a language the body can understand immediately without question. It has also been described as the interface, or connection between the body and the mind because of the positive chemical and biological changes it can produce in the body. These changes are extremely useful in the successful treatment of and recovery from cancer. (PubMed)

Guided imagery is a very useful tool for chronic and acute pain. The use of Guided imagery can give a person a sense of peace, tranquility and self-confidence that they are able to be in charge of their illness and pain. Guided imagery is a powerful resource that we all have within us at all time, the power of mind. It provides an opportunity for people to directly focus on positive thoughts and images, thus allowing a much welcomed relief. (Holistic online, 2007).

The term 'Guided Imagery' refers to a wide variety of technique, including simple visualization and direct suggestion using imagery, fantasy exploration, dream interpretation, imagination where elements of the unconscious are invited to appear as images that can communicate with the conscious mind.(Bary, 2002).

Guided Imagery is a gentle but a powerful technique that focuses and directs the imagination. It involves right-brain function, evoking it, which will access contiguous functions: emotions, intuition and empathy and laughter, sensitivity to music and openness to spirituality. It is a programme of directed thought and suggestions that guide our imagination towards a relaxed and rehoused state. (Chris, 2008).

One type of guided therapy used for cancer patients is called the Simonton method, which was developed in the 1970s by Carl Simonton, a radiation oncologist and Stephanie Mathews-Simonton, a psychotherapist. In the Simonton method, people with cancer are asked to imagine their bodies fighting cancer cells and winning the battle. (Plesis, 2009).

Guided imagery is also known as mind-body medicine, essentially because we are using our mind to affect the status of our body. In this form of alternative therapy, emotional conflicts due to negative life experiences can be shed from the conscious

mind by teaching the individual to re-train their thoughts and feelings.(Hegazy, 2010).

Need for the study

Over the past 25 years, the effectiveness of guided imagery has been increasingly established by research findings that demonstrate its positive impact on health, creativity and performance.(Dawson,1998).

Guided imagery appears to increase comfort and support psychological well-being in oncology patients. Guided imagery may also involve visualizing specific images associated with healing. Relaxation and guided imagery are useful strategies for cancer pain; however, their effects vary from patient to patient. (Lionel, 1998).

When there is excess stimulation of the left side of the brain, biochemical molecules associated with stress are released e.g. cortisol, adrenaline. The goal of guided imagery is to activate right brain to unleash serotonin and helps to soothen the biochemical, thereby decreasing the stress levels. (University of Michigan).

Some commonly used types of guided imagery include; Relaxation imagery, which involves conjuring up pleasant, relaxing images that rest the mind and body. These may be experiences that have already happened or new situations. In healing imagery, patients coping with diseases and injuries can imagine cancer cells destruction and wound healing and may picture themselves to be healthy, happy and symptom-free. In Pain imagery, individuals can control pain through several imagery techniques. (McKinney, 2001).

When used as an adjunct treatment for oncology patients, guided imagery involve visualizing specific images associated with healing. Guided imagery appears to increase comfort and support psychological well-being in oncology patients, as proved by research studies.

A study was conducted to assess the effectiveness of guided imagery and relaxation technique on pain among cancer patients undergoing chemotherapy. Guided imagery was taught to the patients .The results showed that, Guided imagery

had been able to lessen the pain caused by chemotherapy and it can also help people to tolerate chemotherapy. (Troesch,1993).

Researchers conducted a study for comparing oral mucositis pain levels in cancer patients receiving bone marrow transplants (BMT). The relaxation and imagery technique involved two training sessions prior to treatment and twice a week sessions during the first five weeks of treatment. The 94 patients were divided into two groups: control group and experimental group. From the results of the study, it was concluded that relaxation and imagery training significantly reduced pain due to cancer treatment (Syrjala, Donaldson, Davis, Kippes, & Carr, 1995).

Researcher at Ohio State University in Columbus (2001) found that people with cancer who used Guided imagery while receiving chemotherapy felt more relaxed, reported reduction in pain and better co-operation for treatment than those who did not use the technique.

Sloman, (2002) conducted a study to find the effects of guided imagery on pain and stress among cancer patients. Fifty six samples were selected with advanced stages of cancer who had pain and stress. Subjects were instructed on guided imagery and relaxation for a period of four weeks. Study participants were assessed before and after guided imagery. Pain and stress was assessed with perceived stress scale and pain scale. The results revealed significant positive changes on pain, stress and improved quality of life after implementation of guided imagery.

Medscape, (2004), conducted a longitudinal, randomized clinical trial pilot study to determine whether Guided Imagery (GI) with Relaxation Technique (RT) would reduce pain and Stress of women with Breast Cancer. Twenty-eight older women with Breast cancer were randomly assigned to either the treatment or the control group. The treatment consisted of listening twice a day to a 10-to-15-minute audio taped script that guided the women through relaxation and guided imagery. Repeated-measures ANOVA revealed a significant difference between the two groups in the amount of change in pain and stress they experienced over 12 weeks. The treatment group reported a significant reduction in pain and stress at week 12 compared to the control group.

Caroline, (2007) conducted a study to assess the effectiveness of Guided imagery to deal with the side effects of conventional breast cancer treatment in the following areas: pain and surgery, chemotherapy, radiotherapy, hormonal treatments and psycho emotional and survival issues, potential interactions between nonprescription medicines and cancer treatments and cost-effectiveness. It was found that Guided imagery reduced pain and stress associated with breast cancer and improved psychosocial aspects of coping.

Guided imagery technique being noninvasive, affordable technique with no side effects, is helpful in relieving pain and emotional distress associated with cancer. The researcher felt that if patients with cancer are aware of guided imagery technique, as the complimentary therapy, they can practice it as an effective method in self-care management. This motivated the researcher to do a study on guided imagery technique among patients with cancer.

Statement of the problem

A study to assess the effectiveness of guided imagery in terms of reduction of pain and stress among cancer patients admitted at International Cancer Center.

Objectives

1. To assess the pre-test and post-test level of pain among cancer patients.
2. To assess the pre-test and post-test level of stress among cancer patients.
3. To determine the effectiveness of guided imagery in terms of reduction of pain among cancer patients.
4. To determine the effectiveness of guided imagery in terms of reduction of stress among cancer patients.
5. To find out the association between level of pain and stress with their selected demographic variables.

Operational definition

Cancer patients:

Patients who are diagnosed to have cancer, who have malignant tumors and extensive metastasis and who suffer from increased pain and stress

Pain:

Pain is the sensation, feeling resulting from or accompanying some injury derangement, over strain or obstruction of physical power. In this study pain refers to the degree of pain reported by cancer patients by the numerical pain rating scale.

Stress:

Level of stress refers to the respondent's verbal response about the extent of feeling of tension experienced by the subjects caused by a difficult situation. In this study the stress is measured with Perceived stress assessment scale.

Guided imagery:

Guided imagery includes a range of techniques from simple visualization to direct imagery. In this study guided imagery was given by using sound and visual stimulation. It was given for the duration of 10-15 min, twice in a day for 4 days for the cancer patients

Effectiveness:

In this study the effectiveness refers to the extent to which guided imagery reduces stress and pain and promotes wellbeing as measured by numerical pain rating scale and perceived stress assessment scale.

Hypotheses

H1: Patients with cancer pain will experience significant reduction in pain with exposure to Guided Imagery than pre-intervention phase.

H2: Patients with cancer will experience significant reduction in stress with exposure to Guided Imagery than pre-intervention phase.

H3: There will be significant association between the pain score and selected demographic variables.

H4: There will be significant association between the stress score and selected demographic variables.

Assumption

1. Most of the oncology patients will have stress and pain.

2. Guided imagery is an alternative therapy that reduces pain and stress.

Delimitation

1. Study is delimited to in-patients with cancer at International Cancer Center, Neyoor.

2. Study is delimited to four weeks of data collection.

Conceptual framework

The conceptual model of this study is based on Sister Callista's Roy Adaptation Model which was developed in 1964. This model focuses on the concept of adaptation of a person as an open living system. The theorist's concept of Nursing, Person, Health and Environment are all interrelated to this central concept.

Roy expressed that a person's adaptation level is a constantly changing point made up of focal, contextual and residual stimuli to which one can respond with ordinary adaptive responses. According to Roy's view, the focus stimulus is the degree of change or stimulus most immediately confronting the person. Contextual stimuli are all other stimuli. Residual stimuli are factors that may be affecting behavior but whose effects are not validated.

Roy considered regulator is a sub system of coping mechanism which responds automatically through neural-chemical-endocrine processes. Cognator is also a sub system of coping mechanism which responds to the process of complex perception and information processing, learning, judgment and emotion. Effector moods are classification of ways of coping that manifest regular and Cognator activity that is physiologic self-concept, role function and inter-dependence. Adaptive responses are those responses that promote integrity of a person. Ineffective responses are responses that do not contribute to adaptive goals.

The investigator considered person as a cancer patient. In this study the focal stimuli is considered as pain and stress felt by patients. Contextual stimuli is the

unregulated multiplication of cells. The residual stimuli are hospital environment and family support whose effects are not validated. Alternation in neuro-endocrine system and alternation in immune system are considered as regulator, following guided imagery as Cognator. Regulator and Cognator act to maintain adaptation mainly in the adaptive modes, physiological needs and self-concept.

The investigator guided the imagery to the cancer patients such that adaptation level was determined by the cancer patient's response to level of pain and stress. The adaptive response lead to positive outcome and in-adaptive response lead to negative outcome in terms of pain and stress.

Summary

This chapter consisted of background of the study, need for the study, statement of the problem, objectives, operational definitions, hypotheses, assumption, delimitation and conceptual framework.

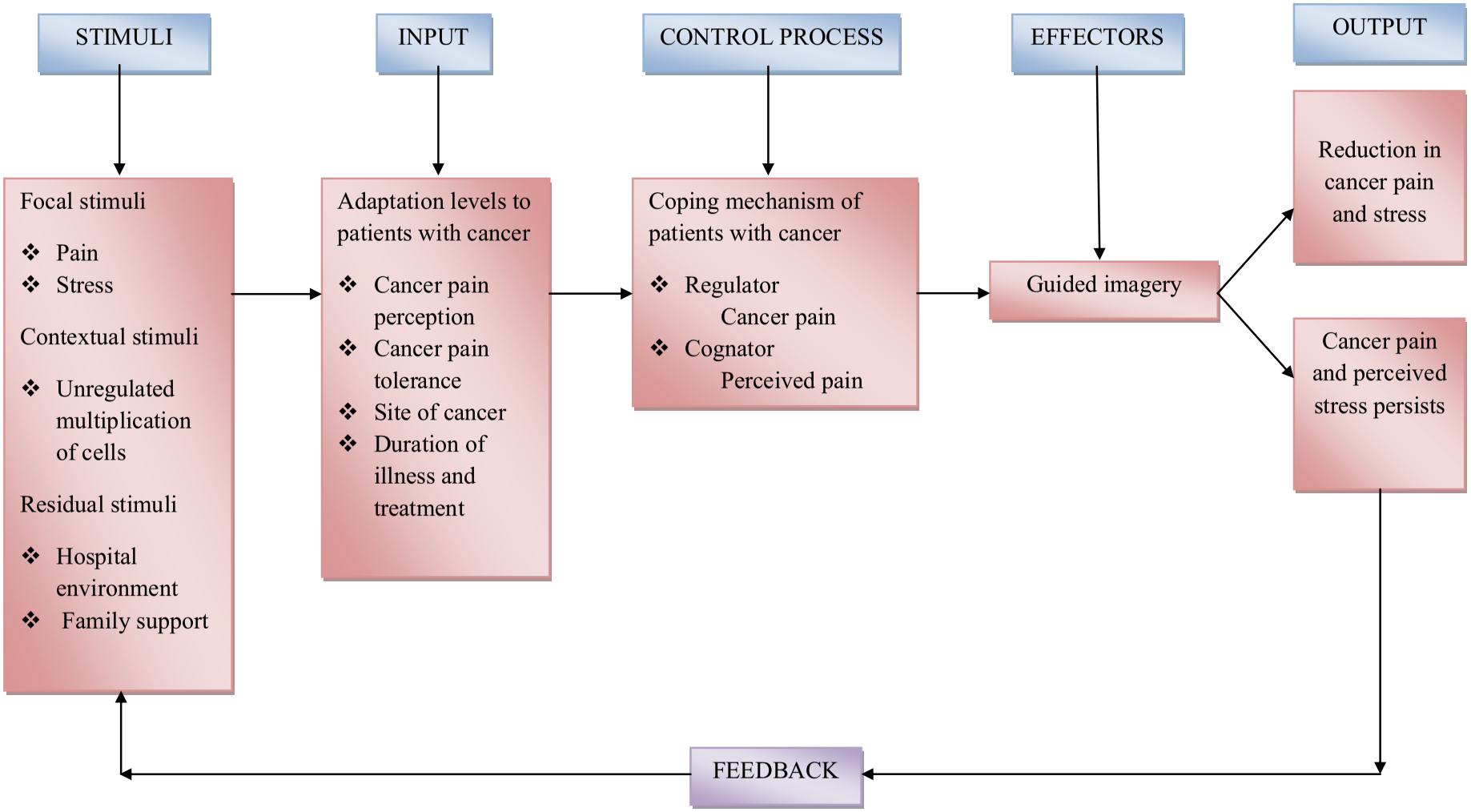

FIG. 1 – Callista Roy's Adaptation Model

CHAPTER-II
REVIEW OF LITERATURE

The review of literature provides a basis for future investigations, Justifies the need for replication, throws light on the feasibility of the study, indicates constraints of data collection and helps to relate the finding from one study to another with a view to establish a comprehensive body of scientific knowledge in a professional discipline.

In the present study the Literature review is arranged under the following headings:

1. Literature related to Management of Stress among Cancer Patients.
2. Literature related to Management of Pain among Cancer Patients.
3. Literature related to Guided Imagery.
4. Literature related to Guided Imagery in terms of Reduction of Pain and Stress.

1. Literature related to Management of Stress among Cancer Patients

Bevearnes, (2000) conducted a longitudinal study in Germany to evaluate stress among cancer patients. Patients with breast cancer (n = 127) were assessed for PTSD(Post traumatic stress disorder) immediately after cancer diagnosis and 6 months after the first assessment. The assessments included screening instruments, such as the Impact of Event Scale-Revised (IES-R) and the PTSD Checklist-Civilian (PCL-C). The first assessment also included a semi structured interview (questionnaire). On the basis of the questionnaire 3.4% of participants met the criteria for mild-to-moderate cancer-related PTSD. However, the screening instruments IES-R and PCL-C identified PTSD in 18.5% of participants at the first assessment and 16.3% of participants at the second assessment. Authors of the study seem to suggest that cancer patients tend to have more stress which affected their quality of life.

Korfage. I. J. et, (2000) conducted a longitudinal study in Netherlands about stress and anxiety among prostate cancer patients. They conducted this study among 299 patients and follow-up was done for five years. Respondents completed four assessments (pre-treatment, at 6 and 12 months, and at 5-year follow-up). Among

men treated by radiation therapy, 27% reported clinically significant levels of stress while 20% reported anxiety.

So they predicted that the stress levels were higher in cancer patients and were gradually increasing as progression of disease increases.

S.H et.al, (2001) conducted an experimental study in 88 out patients at Tokya. Subjects were randomly assigned to receive yoga (n=44) or brief supportive therapy (n=44) prior to their radio therapy treatment with stage 2 and stage 3 breast cancer. The intervention consisted of yoga sessions lasting 60 minutes daily while control group was imparted supportive therapy once in 10 days. Assessment was done at base line and after 6 weeks stress scales. At last results from this therapies showed a significant decrease in psychological distress, (p=0.01) over time in the yoga group as compare to control group. There was significant improvement in the activity level in the yoga group as compare to control group. They concluded that the result suggests a possible role for yoga to improve quality of life and affect in breast cancer patients.

Chi Zeal png, (2002) conducted a cross-sectional, multilevel study on Stress Status cancer patients. Patients who suffered from lung cancer and who resided in six selected Chinese capital cities were selected Data were collected on stress levels and socio demographic characteristics. Stress was assessed using the Perceived Stress Scale, Chinese version (CPSS). A multilevel variance component model was employed to analyze associations between them. This study indicated that higher stress levels were positively associated with lung cancer in China.

Vidhubala, (2003) conducted a study in Chennai about the stress among Head and Neck cancer patients. She conducted among 178 Head and Neck cancer patients. The age group of the patients ranged from 19 to 87 years. The instrument used for assessing stress was Cohen's perceived scale. She proved that there was higher significant levels of stress regardless of patient's age, treatment, site, education and gender.

Sanjorvane, (2004) conducted a cross sectional study about the mental symptoms hostility features and stress in people with cancer. The sample consisted of 100 patients (59 men and 41 females) suffering from cancer. Women reported lower scores than men on total hostility (women SD-3.07, r=0.16 and men SD-3.64, r=0.18,

P<0.05). On anxiety 58% of the females and 49% of the men patients experienced severe anxiety (women SD-4.13, r=0.29, P<0.01 and Men SD- 3.86, (r=0.10, p<0.01). On depression 32% of the females and 24% men reported depression (females SD-3.17, r=0.46, p<0.001, males SD-3.22, r=0.15 p<0.05). On the modified schedule of life experiences the female patients reported statistically high significant score than males in case of stress. (Men SD-63.56, r= 0.02 & females SD-62.53 r=0.24, p<0.001.). This study showed that cancer patients experience severe stress, anxiety, depression and hostility features.

2. Literature related to management of pain among cancer patients

JM de Rijke and AG Kessels, (2005) conducted a meta-analysis and 52 studies were included in it. Pooled prevalence rates of pain were calculated for four subgroups: (i) studies including patients after curative treatment, 33% [95% confidence interval (CI) 21% to 46%]; (ii) studies including patients under anticancer treatment: 59% (CI 44% to 73%); (iii) studies including patients characterized as advanced/metastatic/terminal disease, 64% (CI 58% to 69%) and (iii) studies including patients at all disease stages, 53% (CI 43% to 63%). Of the patients with pain more than one-third graded their pain as moderate or severe. Pooled prevalence of pain was >50% in all cancer types with the highest prevalence in head/neck cancer patients (70%; 95% CI 51% to 88%).

Deona, (2006) conducted an experimental study to assess the effects of reflexology in decreasing the pain and anxiety among cancer patients. Eighty six patients with different types of metastatic cancer and their partners were recruited to participate in the study. The largest group 23 percent had lung cancer followed by breast, colorectal head and neck and lymphoma. The mean age of the patient was 58.3 years and 51 percent were female. Patients were randomly place in experimental and control group. Partners in the experimental group were taught how to apply foot reflexology. Control group participants received usual care and a 30 min reading session from their partner. An immediate decrease in pain intensity and anxiety was seen in patients receiving reflexology. Relief was strongest for patients with moderate to severe levels of pain.

Leonizara and Trimmece, (2007) conducted a study on "Use of Massage on Cancer Pain and Anxiety" at James Cancer Hospital and Research Institute, Columbus, Ohio. This study had two main components. The first was an analysis of the effects of a 15 minute massage protocol on anxiety reported by adult patients receiving treatment for cancer. The second was a determination of the efficacy of this massage protocol, as an adjunctive intervention to pain medication, with adult patients experiencing cancer pain. A control group received standard care for cancer, along with a visit from a volunteer. The sample size for this study was 52 patients, 29 in the experimental group and 23 in the control group. Results suggest that massage was helpful in reducing anxiety and pain among the experimental group. This was concluded that a major change in the culture of the hospital, which has typically relied upon injections and medications to relieve cancer pain.

Tims, (2008) conducted an exploratory study assess the effect of music therapy on cancer pain. Fifty-seven patients (24 females, 33 males; mean ± SD age 39.9 ± 14.35 years [range 15 to 69 years] were matched for age and sex and then non selectively assigned to either an experimental ($n = 27$) or a control ($n = 30$) group. Music was played intermittently to members of the experimental group during the first 24 hour postoperative period. Pain intensity was measured using the Pain Verbal Rating Scales (VRS). Significant decreases in pain intensity over time were found in the experimental group compared to the control group ($p < 0.0001$). These findings suggest that music therapy was an effective non pharmacologic approach for pain management in cancer patients.

Megan Talkington, (2012) conducted an experimental study to assess the effect of progressive muscle relaxation on cancer patients. A total sample of 86 patients (69.8% males) were randomized to 1 of 2 groups; 50 patients received muscle relaxation, whereas 36 patients had 20 minutes of rest in bed (control). Anxiety, pain, physiologic parameters and opioid consumption were measured before and after the 20-minute period. A significant reduction in anxiety ($P \leq .001$) and pain ($P = .009$) was demonstrated in the group that received relaxation therapy as compared with the control group, but no difference was observed in systolic blood pressure ($P = .17$), diastolic blood pressure ($P = .11$), or heart rate ($P = .76$). It suggested that relaxation technique can be used in cancer patients.

3. Literature related to Guided Imagery

Andre and Russell, (2000) conducted a longitudinal study in America on the "effectiveness of guided imagery with progressive muscle relaxation to reduce chronic pain and mobility difficulties of osteoarthritis" (OA). Randomized clinical trial & pilot study was conducted to determine whether Guided Imagery (GI) with Progressive Muscle Relaxation (PMR) would reduce pain and mobility difficulties of women with OA. Twenty-eight older women with OA were randomly assigned to either of the treatment or the control group. The treatment consisted of listening twice a day to a 10-to-15- minute audio taped script that guided the women in GI with PMR. ANOVA revealed a significant difference between the two groups in the amount of change in pain. The treatment group reported a significant reduction in pain and mobility difficulties when compared to the control group. The results of this study justify further investigation of the effectiveness of GI with PMR as a self-management intervention to reduce pain and mobility difficulties associated with OA.

Stuart, (2003) conducted an experimental study in Ohio, USA "to determine whether guided imagery in the peri-operative period could improve the outcome of colorectal surgery patients". A prospective, randomized trial of patients undergoing their first elective colorectal surgery at a tertiary care Centre, were randomly assigned into one of two groups. Group 1 received standard peri operative care and Group 2 listened to a guided imagery tape three days preoperatively; a music-only tape during induction, during surgery and postoperatively in the recovery room. Both groups had postoperative patient-controlled analgesia. All patients rated their levels of pain and anxiety daily, on a linear analogue scale of 0 to 100. Results showed that the median baseline anxiety score was 75 in both groups. Before surgery, anxiety increased in the control group but decreased in the guided imagery group (mean change, 30; $P < 0.001$). Postoperatively, mean increase in the worst pain score was 72.5 for the control group and 42.5 for the imagery group ($P <0.001$). Least pain was also significantly different ($P <0.001$), with a mean increase of 30 for controls and 12.5 for the imagery group. Total opioid requirement was significantly lower in the imagery group, with a mean of 185 mg vs.326 mg in the control group ($P <0.001$).The study showed that Guided Imagery helped in improving the outcome after colorectal surgery.

Mathews and Lee, (2004) conducted a prospective study on "guided Imagery for pain management of women with Interstitial Cystitis (IC). Thirty women with diagnosed IC were randomized into 2 equal groups from a clinical setting in USA. One group (treatment) listened to a 25-minute guided imagery compact disc (CD) that was created specifically for women with pelvic pain and IC, twice a day for 8 weeks. The control group rested for 25 minutes twice daily for 8 weeks. The focus of this guided imagery CD was on healing the bladder, relaxing the pelvic-floor muscles and quieting the nerves specifically involved in IC. The results showed that Guided Imagery was effective in pain management for women with Intestinal cystitis.

Pointing, (2005) conducted an experimental study on "guided imagery for pain management in children with sickle cell disease aged 6 to 11 years in a hospital of Columbia. In this, Children completed the Pain Assessment Tool at study outset and Kids Imaging Ability Questionnaire (KIAQ) and Sickle Cell Self-Efficacy Scale (SCSES) pre and post intervention test. Diaries including pain episodes and daily activities were completed daily during two months by twenty participants. Following the guided imagery training, children had greater self-efficacy (t=5.46, p< 0.000), reported fewer pain episodes (t=3.379, p=0.003) and scored pain intensity lower on the FACES scale (t=4.951, p=0.000). Therefore guided imagery was an effective adjunct to pain management which resulted in decreased pain and decreased use of opioid medication as reported by the samples.

Junpiyo, (2005) conducted a randomized controlled study on "the use of guided imagery for the treatment of recurrent abdominal pain (RAP) in children" in Arizona, Tucson. Ten children with RAP were enrolled after evaluation by a pediatric gastro enterologist. They were trained in relaxation and guided imagery during 4 weekly 50 minutes sessions. Pain diaries were completed at 0, 1&2 months. Children and parents also completed psychological questionnaires at enrolment. Although refractory to conventional treatment by their physician and paediatric gastroenterologist, the children experienced a 67% decrease in pain during the therapy (chi-square for trend=<0.001). The study concluded that the use of relaxation along with guided imagery was an effective and safe treatment for childhood RAP.

James, (2008) conducted an experimental study to determine the guided imagery to decrease vomiting and distress in patients who are receiving chemotherapy at cancer hospital and research institute, Ohio University. Twenty eight patients were selected and randomly assigned in the experimental group and control group. Both groups received the same antiemetic regimen while the experimental group additionally used a chemotherapy specific guided imagery. The findings revealed that the guided imagery group expressed a significantly more positive experience (p=0.0001) and reduced side effects of chemotherapy.

Parker and Smith, (2009) conducted an experimental study to evaluate the effects of guided imagery relaxation programme for reducing the anxiety level among exam going students in Bangalore. A randomized study consisting of 14 days relaxation technique for exams going students were randomly assigned to a 25 minutes audio visual relaxation of guided imagery program to experimental group and not for control group. Anxiety level scores were recorded to both groups. The result showed that, for experimental group the reduction in anxiety (75% had no anxiety and 25% had healthy anxiety) after 14 days intervention training was statistically significant, whereas anxiety level was same in control group. The study concluded that there was a significant anxiety reduction achieved through a 25 minute audio, video guided imagery relaxation program with exam going students. Guided imagery was more effective in lowering anxiety level.

Cupal, (2010) conducted a longitudinal study to examine the effects of guided imagery on knee strength, reinjures anxiety and pain for knee surgery patients. Thirty patients were recruited at sports medicine clinic with anterior cruciate ligament tear. Ten relaxation guided imagery sessions were conducted. The results showed that 70 % of patients had greater knee strength and less re injury, anxiety and pain after implementation of guided imagery.

Linda, (2010) conducted a study to assess the effects of guided imagery on improve symptom management, functional status and quality of life among chronic bronchitis and emphysema patient. Nineteen patients were selected with moderate chronic bronchitis. Guided imagery was administered to these patients for 10 days. The results showed that guided imagery significantly improved the patient's quality of life.

Martin, (2010) conducted an experimental study to measure the effectiveness of customized guided imagery for increasing comfort in women at an early stage of breast cancer by a College of Nursing in USA. Fifty three women (26 in the experimental group, 27 on the control group) aged 37 to 81 years were randomly assigned. The experimental group was to listen to a guided imagery audio tape once a day for the duration of the study and the radiation therapy comfort questionnaire was self-administered at three time points prior to the introduction of intervention and the beginning of radiation therapy (Time 1), three weeks later (Time 2) and three weeks after completing radiation therapy (Time 3). The results of the study showed that there was significant differences between the control and experimental group and also stated that guided imagery was an effective intervention for enhancing comfort of women undergoing radiation therapy for early stage breast cancer.

Meichenbaum & Cameron (2010) Department of Nursing Taiwan conducted a quasi-experimental study to assess the long term effect of an audio visual relaxation training treatment involving deep breathing, exercise, muscle relaxation, guided imagery and meditation and compared with routine nursing care for reducing anxiety, improving sleep and promoting relaxation among Chinese adults with cardiac disease. A convenience sample of 100 cardiology patients (41 treatment, 59 control) admitted to Medical Center Hospital in the Republic of China was studied for one year. The results reported that the hypothesized relationship and relaxation training ($P < .05$) improved anxiety, sleep and relaxation in the treatment group as compared to the control group. The study concluded that audio-visual relaxation training might be a beneficial adjunctive therapy for adult cardiac patients.

Stanley, (2010) conducted a randomized pilot controlled study to examine effect of guided imagery on blood pressure in pregnant women with hypertension. A total of 69 pregnant women with hypertension were randomized to period of guided imagery for 4 weeks until delivery. Arterial pressure, systolic and diastolic blood pressure and anxiety were measured. The study results revealed that women allocated to guided imagery had lower mean arterial pressure elevation over time than those allocated to quiet rest(GI M=6.55,SD=7.63,Quiet rest M=5.93MMHg SD=6.55,t=2.36 p=0.02)The study concluded that guided imagery was effective in reducing blood pressure in pregnant women.

Clarke and Gregory, (2010) conducted an experimental study to examine the effect of guided imagery on anxiety among patients undergoing magnetic resonance imaging in USA. All subjects were randomly assigned (20 in the experimental group and 21 in the control group). The participants were encouraged to use guided imagery during the MRI and also encouraged to imagine the colours, sounds, smells and feelings. Data were collected by using state anxiety and a brief questionnaire directed at describing their MRI experience as well as any relaxation techniques used during the scan. The results reported that the mean trait anxiety scores for the experimental and control group were similar. ($t = 0.63$, $df = 39$, $p= 0.53$) and after listing to the relaxation or guided imagery tape, experimental group had an 11.2 drop in their mean anxiety score, whereas the control group had a drop of only 1.3. The study concluded that the guided imagery had a significant effect in reducing anxiety of clients during MRI.

Sung, (2011) conducted an experimental study to assess the effectiveness of guided imagery in reducing stress and post chemotherapy nausea and vomiting of patients with breast cancer. Thirty patients receiving chemotherapy were selected and they were randomly assigned into experimental group and control group. All patients were administered a self-report, multiple affect adjective checklist and incidents of anticipatory nausea and vomiting. Post chemotherapy nausea and vomiting for first three chemotherapy days were recorded. The data showed that guided imagery group was significantly less anxious and depressive than the control group.

Stannton, (2011) conducted a study regarding the use of pre-packaged compact discs (CDs) which incorporate Guided Imagery (GI) with suggestions and affirmations. Results indicated that the use of these CDs results in quick reduction of stress-related issues for all participants. Notable improvements were identified in general feelings of well-being (91% of participants), positive thoughts (82%) and ability to cope in stressful situations (73%). Decreases in incidence ratings were greatest for insomnia, anger and negative thoughts. Most commonly the first benefits people noticed were increased relaxation, decreased negative thoughts and decreased stress.

4. Literature related to Guided Imagery in terms of Reduction of Pain and Stress

Georgia, (2005) conducted a pilot study to assess the effectiveness of guided imagery on pain and stress among cancer patients. Thirty patients were recruited and their pain and stress level was measured through pain rating scale and perceived stress scale. The guided imagery was administered for two weeks. After the intervention the anxiety level was reassessed through the same tools. The results revealed that there was a significant reduction in level of pain and stress after implementing guided imagery.

Ann, (2005) conducted an experimental study to assess the effectiveness of guided imagery and relaxation in reducing pain and stress. Thirty chemotherapy patients with breast cancer were selected. They were randomly assigned into experimental group and control group. Each patient was screened through pain scale and Cohen's stress scale. After implementation of guided imagery it was found that the experimental group was significantly less anxious and depressive than the control group.

Leon-Pizarro, (2007) conducted a randomized controlled study to assess the effectiveness of guided imagery to reduce pain and stress among breast cancer patients. Sixty six patients were randomly allocated into two groups as experimental and control group. Numerical pain rating scale and stress scale were used to assess the anxiety and depression. Guided imagery was implemented to the experimental group. The result showed that experimental group had reduction in pain ($p=0.008$), anxiety ($p=0.03$) compared with control group.

Holden, (2009) conducted an experimental study to assess the effects of guided imagery on Pain and stress on chronic cancer patients. Twenty four patients were recruited at Taiwan hospital and they were randomly assigned as experimental group and control group. Guided imagery was administered for a period of two weeks. The results revealed that guided imagery group exhibited less pain and anxiety than the control group.

Barbara, (2009) conducted an experimental study to assess the effects of guided imagery on pain and stress in terminally ill cancer patients. Sixty patients were selected and they were randomly assigned into experimental group and control group.

The guided imagery was administered for the period of two weeks. Before and after procedure pain and stress was assessed with pain and stress scale. The data showed that guided imagery was effective to reduce the pain and stress and to promote the self-esteem. All findings were significant at 0.05 levels.

Esplen, (2009) conducted a longitudinal study to test the impact of guided imagery therapy on decreasing pain and stress in patients with advanced cancer. Fifty participants with advanced cancer were selected. Guided imagery was administered for the period of three weeks. The results showed that the guided imagery had significant effects on the 74 % reduction of pain and 73 % of stress.

Andriane, (2010) conducted an experimental study to assess the effectiveness of guided imagery on pain and stress among breast cancer patients undergoing chemotherapy and radiation therapy. Thirty four breast cancer patients were selected and they were randomly assigned into experimental group and control group. The pain and stress was measured by pain and stress scale respectively. Guided imagery intervention was given for a period of two weeks. The data proved that the guided imagery group had significantly less pain and stress compared to other group.

University of Sydney in Australia in 2011 conducted a study and observed that progressive muscle relaxation combined with guided imagery had the potential to promote relief of cancer pain and stress. The techniques appear to produce a relaxation response that may break the pain-muscle-tension-stress cycle and facilitate pain relief through a calming effect. This technique seems to provide a self-care strategy in relieving pain and stress.

A study was conducted to examine the effects of guided imagery/music and music on pain and stress for cancer patients. Subjects (n=49) were assigned to a guided imagery (test group) or a music intervention (control group) to compare the effects of these interventions on anxiety symptoms, using a home-based audiotape program. Subjects completed self-report of pain and stress using the Numerical pain scale and perceived stress scale. The study showed both guided imagery and music were beneficial interventions in the reduction of pain and stress. Subjects listened to the audiotape three times a week over a three week period, assessing their anxiety level before listening to the audiotape on the first day of the week and then at the end

of the session on the last day of the week, allowing a total of 9 listening sessions over the three weeks. The study suggested that health care providers can offer both guided imagery and music as effective methods of relaxation and reduction of pain.

Sharett Institute of Oncology, Israel 2011 conducted a study on psychological intervention and pain in cancer patients. They examined the long-term effects of Guided imagery on the stress and pain of patients recently diagnosed with localized cancer. 116 patients, 49 men and 67 women were randomized into an intervention group and a control group on 3:1 basis. Progressive muscle relaxation with guided imagery was given to decrease psychological distress and decrease the patients' pain. Cohen's perceived stress scale and pain scale were used to assess the outcome of pain and stress. Within 1 month of diagnosis, 3 months later (shortly before starting intervention) and 6 months after the end of the intervention. At the final assessment, they proved that guided imagery was effective in reducing the stress and pain of cancer patients.

CHAPTER III

METHODOLOGY

Research methodology refers to the techniques used to structure a study and to gather and analyze information in a systematic fashion. (Polit & Hungler, 2008).

Research methodology includes the steps, procedures and strategies for gathering and analyzing data in the research investigation.

Research approach

An experimental approach was used to determine the effectiveness of Guided imagery in terms of reduction of pain and stress among cancer patients.

Research design

The research design selected was **Quasi experimental One group pretest, posttest-- Time series design.**

Group	Pretest	Intervention	Post test
Experimental	O_1, O_3, O_5	X	O_2, O_4, O_6

Schematic representation of research design for pain assessment

Group	Pretest	Intervention	Post test
Experimental	O_1	X	O_2

Schematic representation of research design for stress assessment

Key- pain

O_1 - Pretest 1st day morning

O_2 - Posttest1st day evening

O_3 - Pretest 2nd day morning

O_4 - Posttest2nd day evening

O_5 - Pretest 3rd day morning

O_6 - Posttest 3rd day evening

X - Intervention (Guided Imagery)

Key- Stress

O_1 - Pretest 1st day morning

O_2 - Posttest 4th day evening

X - Intervention (Guided Imagery)

Variables

Independent variable

Guided Imagery

Dependent variable

Pain and stress level

Settings of the Study

The study was conducted at the International Cancer Center, Neyoor. The census of out-patients at Cancer Center was 40-60 patients per day. The total inpatient in cancer ward was 20. The Hospital was well equipped with adequate Radiotherapy unit. The Hospital was situated at a distance of 40 kilometers from Nehru Nursing

College. The setting was chosen on the basis of feasibility, availability of adequate sample and the familiarity of the investigator with the setting.

Study population

The population for the study was patients diagnosed with cancer and admitted for chemotherapy or radiotherapy treatment.

Sampling technique

Non probability convenient sampling technique was used in this study.

Sample size

The total size of sample was 30.

Criteria for sample selection

Inclusion criteria

- Patients who were admitted with cancer for further management (Radiation, Chemotherapy).
- Patients in the age group of 30-60 yrs.
- Patients speaking and understanding Tamil.

Exclusion criteria

- Patients who were terminally ill.
- Patients with sensory deficit.
- Patients who were on continuous opioids.

Development and Description of tool

The tool was developed after extensive review of literature and internet search.

Part 1

Demographic variables were Age, Sex, Marital status, religion. Clinical variables were duration of illness, stage of cancer, mode of treatment, site of cancer.

Part 2

Numerical pain rating scale is a standardized tool and includes readings from 1-10, by which the intensity of pain was calculated.

Part 3

Stress assessment scale is a standardized tool and includes scoring 0-20, by which stress level can be calculated.

Scoring Key

Numerical Pain rating scale

- 0 – No pain.
- 1 – 3 Mild pain.
- 4 - 6 Moderate pain.
- 7 – 10 severe pain.

Stress Assessment scale

- 0 - 10 mild.
- 11 - 20 moderate.
- 20+ severe.

Content Validity

Validity refers to the degree to which an instrument measures what it is supposed to measure. The content validity of the tool was established on the basis of opinion of one medical expert and five nursing experts in the field of Medical Surgical Nursing.

Reliability of the tool

The tool was standardized numerical Pain rating scale and the Stress Assessment scale was published in Indian Journal of Urology (Year 2010, vol 6).

Intervention

Intervention was given on the first, second, third and fourth day of cancer patients who are admitted for Chemotherapy, radiation therapy. Guided imagery is a psychological intervention that guides the imagination towards a relaxed, focused state. In this study, Guided imagery consisted of imagination of scenes such as a forest with green trees, chirping of birds, herd of deer walking across and flowing water stream. Corresponding sounds were given as audio and patients were guided through these scenes with imagination. Patients were taken to sea shore and guided to imagine the moving waves, the cool breeze, the vast blue sky and the sea. The guidance was given in the form of verbal instructions in the headphone. The duration of this intervention was for 15-20 minutes.

Pilot Study

It is a rehearsal for the main study. A formal permission was obtained from the Medical superintendent and Director of International Cancer Center. The pilot study was conducted at Cancer center for a period of one week. The doctors and nurses were also informed and their cooperation was obtained. The sample size was 3 and patients were selected by using purposive sampling. Consent was obtained from each patients and reassurance was provided. Pretest pain and stress score was assessed. Patient was made to relax for 5 minute and Guided Imagery was provided through headphone for 15 minutes. Posttest assessment was done by numerical pain rating scale and stress assessment scale. The results of the pilot study showed that the Patients who received Guided Imagery had reported reduction in pain and stress. The intervention was found to be feasible and was decided to be followed in the main study. The samples selected for the pilot study were not included for the main study.

Procedure for data collection

The researcher got permission from Principal, and research ethical committee of Nehru College of Nursing. A formal permission was obtained from the Medical superintendent and director of International Cancer Center. The institutional ethics review board approved the protocol.

Data collection period was between 1-8-2014-30-8-2014 morning and evening. 30 patients scheduled to undergo Chemotherapy or Radiation treatment were selected by using non probability convenient sampling.

Rapport was established with the patients and brief introduction about the study was given. Consent was obtained from each patient. Pre-test pain and stress score was assessed. Patient was made to relax for 5 minute and Guided Imagery was provided through headphone for 15 minutes. Post-test assessment was done by numerical pain rating scale and stress assessment scale. The data were collected approximately for 3-4 study subjects per day.

Plan for data analysis

The data were analyzed by using descriptive and inferential statistics.

Descriptive statistics

Frequency and percentage distribution were used to analyze the demographic data.

Inferential statistics

Paired 't' test was used to assess the effectiveness of Guided Imagery in terms of reduction of pain and stress among cancer patients. Chi-square test was used to find out the association of the clinical variables and pain and stress among cancer patients.

Protection of Human Rights

The researcher got permission from Principal and research ethical committee of Nehru Nursing College. A formal permission was obtained from the Medical superintendent and Director of International Cancer Center, Neyoor. Rapport was

established with the patients subjected to Cancer and a brief introduction about the study was given. Consent was obtained and reassurance was provided. During the data collection period, the study subjects had no adverse effects because of the intervention done by the researcher.

Summary

This chapter consisted of research design, variables in the study, study setting, population, sampling technique, sample size, criteria for selection of sample, development and description of tool, content validity, pilot study, data collection procedure and plan for data analysis.

CHAPTER-IV
ANALYSIS AND INTERPRETATION OF DATA

This chapter deals with the analysis and interpretation of data collected to assess the effectiveness of guided imagery in terms of reduction of pain and stress. Descriptive and inferential statistics were used for analyzing the data on the basis of the objectives of the study. The data had been tabulated and organized as follows:

Organization of data

Section A: Description of Demographic variables.

Section B:

1. Assessment of pre-test and post-test pain score among cancer patients.
2. Significance of mean pre-test and post-test pain scores of Guided imagery.

Section C:

Association between the level of pain with selected demographic variables.

Section D:

1. Assessment of pre-test and post-test stress level among cancer patients.
2. Significance of mean pre-test and post-test stress level of Guided imagery.

Section E:

Association between the level of stress with selected demographic variables.

Section A:

Table: 1 Frequency and Percentage Distribution of Demographic Variables

n = 30

Sl.No	Demographic variables	Experimental Group	
		Frequency	**Percentage %**
1.	Age		
	a. 30-40 years	9	30
	b. 41-50 years	10	33.33
	c.51- 60years	11	36.67
2.	Gender		
	a. Male	12	40.00
	b. Female	18	60.00
3.	Marital Status		
	a. Married	30	100
	b. Unmarried	0	0
4.	Religion		
	a. Hindu	16	53.33
	b. Christian	14	46.67
	c. Muslim		
5.	Duration of illness		
	a. 6 Months	6	20.00
	b. 1 year	9	30.00
	c. > 1 year	15	50.00
6.	Stage of cancer		
	a. First stage	0	0
	b. Second stage	14	46.67
	c. Third stage	16	53.33
	d. Fourth stage	0	0
7.	Mode of treatment		
	a. Chemotherapy	11	36.67
	b. Radiation therapy	19	63.33
	c. Others	0	0

Sl.No	Demographic variables	Experimental Group	
		Frequency	Percentage %
8.	Site of cancer		
	a. Cancer of cervix	8	26.66
	b. Cancer of breast	9	30
	c. Cancer of oral cavity	7	23.33
	d. Cancer of larynx	4	13.33
	e. Cancer of esophagus	1	3.34
	f. Cancer of clitoris	1	3.34

Data from table 1 indicated that 11(36.66%) of them were in the age group of 51-60 years, 10(33.34%) were in the age group of 41-50 years, 9(30%) were in the age group of 30-40 years.

Data from table 1 indicated that 18(60%) were females and 12(40%) were males.

Data from table 1 revealed that 16 (53.33%) suffered from third stage of cancer, 14(46.67%) had suffered from second stage of cancer.

Data from table 1 denoted that 19(63.33%) had undergone Radiation therapy, 11(36.67%) had undergone Chemotherapy.

Section: B

Table 2: Distribution of Pre-test and Post-test Pain Score among Cancer Patients.

n=30

Pre-test score			Post-test score		
Day	**Mean**	**S.D**	**Day**	**Mean**	**S.D**
Day-1	6.43	0.81	Day-1	2.73	0.83
Day-2	5.96	0.76	Day-2	2.50	0.63
Day-3	5.26	0.78	Day-3	1.80	0.61

Table 2 indicated that post-test pain score on day 1 has reduced to 2.7 from mean pre-test score of 6.4. It showed effective pain perception reduction.

Table 2 denoted that post-test pain score on day 2 has reduced to 2.5 from mean pre-test score of 5.9. It showed effective pain perception reduction.

Table 2 indicated that post-test pain score on day 3 has reduced to 1.8 from mean pre-test score of 5.2. It denoted effective pain perception reduction.

Table 3: Comparison of Pre-test and Mean Post-test Scores of Guided Imagery in Terms of Reduction of Pain among Cancer Patients.

n=30

Day	Pre-test mean±SD	Post-test mean±SD	Paired 't' test	Table value
Day-1	6.43 ± 0.81	2.73 ± 0.83	25.51 *	29 df, 2.042
Day-2	5.96 ± 0.76	2.50 ± 0.63	24.46 *	29 df, 2.042
Day-3	5.26 ± 0.78	1.80 ± 0.61	27.86 *	29 df, 2.042
Pre-test on Day-1	6.43 ± 0.81	1.80 ± 0.61	33.17 *	29 df, 2.042
Post-test on Day-3				

*--- Significant at 0.05 level.

Table 3 and figure 2 indicated that on the first day, the pre-test mean pain score was 6.43 and the post-test was 2.73. Calculated 't' test value 25.51 was found to be more than the table value. This data showed that there was significant reduction of pain score in the post-test in the first day.

Table 3 and figure 2 indicated that on the second day, the pre-test mean pain score was 5.96 and the post-test was 2.50. Calculated 't' test value 24.46 was found to be more than the table value. This data showed that there was significant reduction of pain score in the post-test in the second day.

Table 3 and figure 2 indicated that on the third day, the pre-test mean pain score was 5.26 and the post-test was 1.80. Calculated 't' test value 27.86 was found to be more than the table value. This data showed that there was significant reduction of pain score in the post-test in the third day.

The whole data had indicated that Guided imagery was highly effective in reducing pain perception.

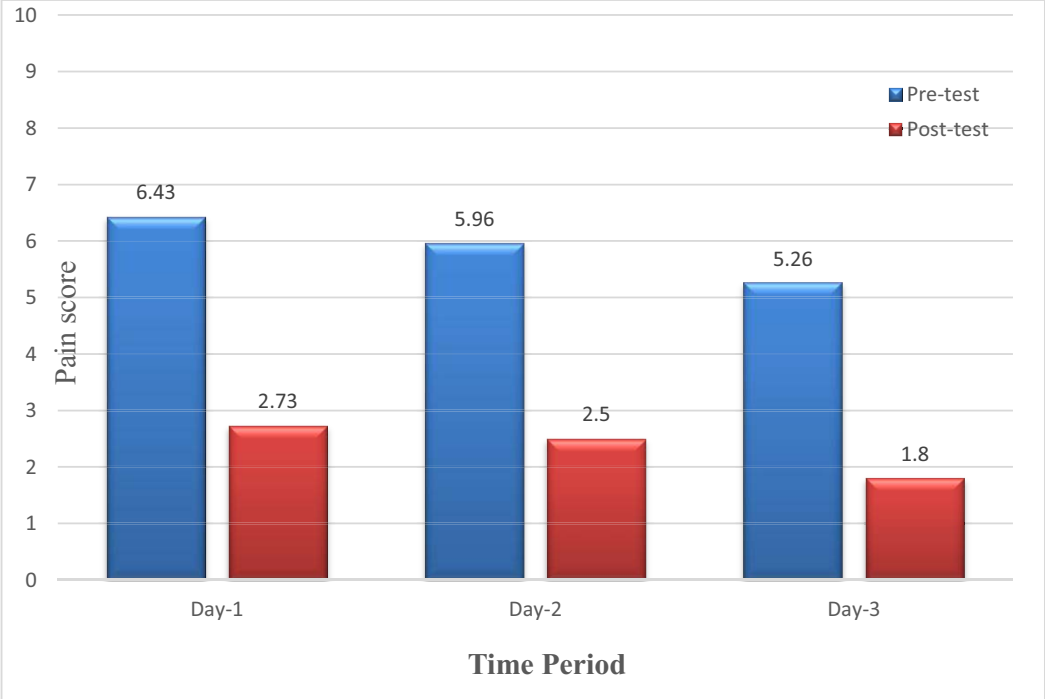

Figure 2. Comparison of Pre test and Post test pain scores among cancer patients.

Section: C

Table 4 Association Between Level of Pain with Selected Demographic Variables

n=30

S. No	Variable	Level of pain			χ^2	Table value
		Moderate	Severe	Total		
1.	Age					
	a. 30-40 years	5	4	9	4.49	2df, 5.99
	b. 41-50 years	1	9	10	NS	
	c. 51- 60years	4	7	11		
2.	Gender					
	a. Male	3	9	12	0.625 NS	1df, 3.84
	b. Female	7	11	18		
3.	Religion					
	a. Hindu	6	10	16	0.268	1df, 3.84
	b. Christian	4	10	14	NS	
	c. Muslim					
4.	Duration of illness					
	a. 6 Months	4	2	6	9.74 *	2df, 5.99
	b. 1 year	5	4	9		
	c. > 1 year	1	14	15		
5.	Stage of cancer					
	a. First stage	0	0	0		
	b. Second stage	2	12	14	4.29 *	1df, 3.84
	c. Third stage	8	8	16		
	d. Fourth stage	0	0	0		

S. No	Variable	Level of pain			χ^2	Table value
		Moderate	Severe	Total		
6.	Mode of treatment				7.17*	1df, 3.84
	a. Chemotherapy	3	16	19		
	b. Radiation therapy	7	4	11		
	c. Surgery	0	0	0		

NS—Not significant, *---Significant at 0.05 level.

Table 4 indicated that there was an association between the level of pain and the demographic variables such as duration of illness, stage of cancer, mode of treatment.

Table 4 indicated that there was no association between the level of pain and demographic variables such as age, sex, religion.

Section D:

Table 5: Distribution of Pre-test and Post-test Stress Score among Cancer Patients.

n-30

Pre-test score on Day 1		**Post-test score on Day 4**	
Mean	**S.D**	**Mean**	**S.D**
22.33	3.73	10.20	2.34

Table 5 indicated that post-test stress score on day 4 had reduced to 10.20 from mean pre-test score of 22.33 on day 1.This data showed that there was significant reduction of stress level. It indicated that Guided imagery was highly effective in reducing stress level of cancer patients.

Table 6: Comparison of Pre-test and Mean Post-test Scores of Guided Imagery in Terms of Reduction of Stress among Cancer Patients.

n=30

Pre-test mean ± SD on 1st day	Post-test mean ± SD on 4th day	Paired 't' test	Table value
22.33 ± 3.73	10.20 ± 2.34	13.61 *	29 df, 2.042

***---Significant at 0.05 level.**

Table 3 and figure 3 indicated that on the first day, the pre-test mean stress score was 22.33 and on the 4th day the post-test was 10.20. Calculated 't' test value 13.61 was found to be more than the table value. This data had indicated that there was significant reduction of stress score, hence research hypothesis was accepted. The whole data had denoted that Guided imagery was highly effective in reducing stress level of cancer patients.

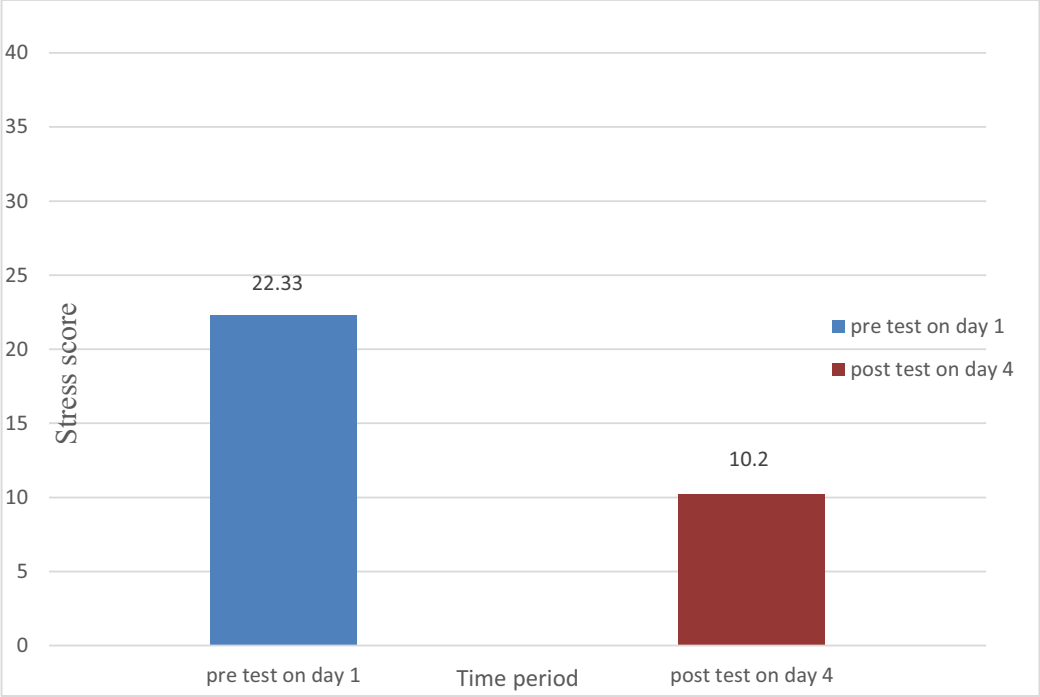

Figure 3. Comparison of Pre test and Post test scores of stress among cancer patients.

Section: E

Table 7 Association Between Level of Stress with Selected Demographic Variables

n=30

S. No	Variables	Level of stress			χ^2	Table value
		Moderate	Severe	Total		
1.	Age					
	a. 30-40 years	4	5	9	0.73 NS	2df, 5.99
	b. 41-50 years	3	7	10		
	c.51- 60years	3	8	11		
2.	Gender					
	a. Male	5	7	12	2.80 NS	1df, 3.84
	b. Female	13	5	18		
3.	Religion					
	a. Hindu	12	4	16	3.21 NS	1df, 3.84
	b. Christian	6	8	14		
	c. Muslim	0	0	0		
4.	Duration of illness					
	a. 6 Months	5	1	6	5.04 NS	2df, 5.99
	b. 1 year	7	2	9		
	c. > 1 year	6	9	15		
5.	Stage of cancer					
	a. First stage	0	0	0	4.29 *	1df, 3.84
	b. Second stage	12	2	14		
	c. Third stage	6	10	16		
	d. Fourth stage	0	0	0		

S. No	Variables	Level of stress			χ^2	Table value
		Moderate	Severe	Total		
6.	Mode of treatment				4.04 *	1df, 3.84
	a. Chemotherapy	4	7	11		
	b. Radiation therapy	14	5	19		
	c. Surgery	0	0	0		

NS---- Not significant, *---- Significant at 0.05 level

Table 4 indicated that there was an association between the level of stress and the demographic variables such as stage of cancer, mode of treatment.

Table 4 indicated that there was no association between the level of stress and demographic variables such as age, sex, religion, duration of illness.

CHAPTER - V
DISCUSSION

The purpose of the study was to evaluate the effectiveness of Guided imagery in terms of reduction of pain and stress among cancer patients admitted at International Cancer Center. The discussion chapter was based on the objectives specified in this study.

Description of demographic variables

Regarding age, out of 30 samples, 11(36.66%) of them were in the age group of 51-60 years, 10(33.34%) were in the age group of 41-50 years, 9(30%) were in the age group of 30-40 years. Regarding sex, 18(60%) were females and 12(40%) were males. With respect to religion, out of 30 samples, 14(46.67%) of them were Christian, 16(53.33%) of them were Hindu. Regarding stage of cancer, 16 (53.33%) suffered from third stage of cancer, 14(46.67%) had suffered from second stage of cancer. With respect to mode of treatment, 19(63.33%) had undergone Radiation therapy, 11(36.67%) had undergone Chemotherapy. Regarding site of cancer,9 (30%) had breast cancer, 8 (26.66%) had cervical cancer, 7 (23.33%) had oral cancer, 4(13.33%) had laryngeal cancer, 1 (3.34%) had esophageal cancer, 1(3.34%) had cancer in the clitoris.

OBJECTIVE I

The first objective of the study is to assess the pre-test and post-test level pain among cancer patients.

In the first day the mean post-test pain score had reduced to 2.73 from mean pre-test score of 6.43.It showed decreased pain perception reduction. In the second day the mean post-test pain score had reduced to 2.50 from mean pre-test score of 5.96.It showed decreased pain perception reduction. In the third day the mean post-test pain score had reduced to 1.80 from mean pre-test score of 5.26. This indicated decreased pain perception

OBJECTIVE II

The second objective of the study is to assess the pre-test and post-test level stress among cancer patients.

The post-test stress score on day 4 had reduced to 10**.**20 from mean pre-test score of 22**.**33 on day 1.This data showed that there was significant reduction of stress level. It indicated that Guided imagery was highly effective in reducing stress level of cancer patients.

OBJECTIVE III

The third objective is to determine the effectiveness of Guided imagery in terms of reduction of pain among cancer patients.

On the first day, the pre-test mean pain score was 6**.**43 and the post-test was 2**.**73. Calculated 't' test value 25**.**51 was found to be more than the table value. This data showed that there was significant reduction of pain score in the post-test in the first day. On the second day, the pre-test mean pain score was 5.96 and the post-test was 2**.**50. Calculated 't' test value 24**.**46 was found to be more than the table value. This data showed that there was significant reduction of pain score in the post-test in the second day. On the third day, the pre-test mean pain score was 5.26 and the post-test was 1.80. Calculated 't' test value 27**.**86 was found to be more than the table value. This data showed that there was significant reduction of pain score in the post-test in the third day. The whole data had indicated that Guided imagery was highly effective in reducing pain perception.

OBJECTIVE IV

The fourth objective is to determine the effectiveness of Guided imagery in terms of reduction of stress among cancer patients.

On the first day, the pre-test mean stress score was 22**.**33 and on the 4^{th} day the post-test was 10**.**20. Calculated 't' test value 13.61 was found to be more than the table value. This data had indicated that there was significant reduction of stress score, hence research hypothesis was accepted. The whole data had denoted that Guided imagery was highly effective in reducing stress level of cancer patients.

OBJECTIVE V

The fifth objective is to find out the association between level of pain and stress with their selected demographic variables.

There was an association between the level of pain and the demographic variables such as duration of illness, stage of cancer, and mode of treatment and there was no association between the level of pain and demographic variables such as age, sex, religion. There was an association between the level of stress and the demographic variables such as stage of cancer, mode of treatment and there was no association between the level of stress and demographic variables such as age, sex, religion, duration of illness.

The present study findings are similar to study findings conducted by Andre Russell (2000), Stuart (2003), Georgia (2005), Ann (2005), Leon- Pizarro (2007), Holden (2009), Barbara (2009), Esplen (2009), Andriane (2010), University of Sydney in Australia (2011), Sharett Institute of Oncology, Israel (2011).

Leon-Pizarro(2007) conducted a randomized controlled study to assess the effectiveness of guided imagery to reduce pain and stress among breast cancer patients. Sixty six patients were randomly allocated into two groups as experimental and control group. Numerical pain rating scale and stress scale were used to assess the anxiety and depression. Guided imagery was implemented to the experimental group. The result showed that experimental group had reduction in pain ($p=0.008$), stress ($p=0.03$) compared with control group.

CHAPTER - VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS.

This chapter deals with the summary of study, the implications for nursing practice, the implications for nursing education, nursing research, and nursing administration and the recommendations for future research.

Summary of the study

The study was undertaken to evaluate effectiveness of Guided imagery in terms of reduction of pain and stress among cancer patients admitted at International cancer Institute. The study was experimental in nature. Study was conducted for a period of four weeks at International Cancer Center, Neyoor based on inclusion criteria.30 samples were selected by using convenient sampling technique. Pre-test pain and stress score was assessed. Patient was made to relax for 5 minute and Guided Imagery was provided through headphone for 15 minutes. Post-test assessment was done by numerical pain rating scale and stress assessment scale. The data were collected approximately for 3-4 study subjects per day.

Study was based on Roy adaptation theory. It provides comprehensive systematic framework for evaluating the effectiveness of Guided imagery in terms of reduction of pain and stress among cancer patients. Descriptive and inferential statistics were used to report the findings.

Major findings of the study

In the first day, the mean post- test pain score level was 2**.**73 which was lower than the mean pre-test pain score level of 6**.**43. The obtained 't' value for the test was 25**.**51 at 0.05 level of significance.

In the second day the mean post-test pain score level was 2.50 which was lower than the mean pre test pain score level of 5.96.The obtained t value for the test was 24.46 at 0.05 level of significance.

In the third day the mean post-test pain score level was 1.80 which was lower than the mean pre test pain score level of 5.26.The obtained t value for the test was 27.86 at 0.05 level of significance.

There was no association between the pretest level of pain score and selected demographic variables like age, sex, religion. There was an association between level of pain and demographic variables such as duration of illness, stage of cancer, mode of treatment.

On the first day, the pre-test mean stress score was 22**.**33 and on the 4th day the post-test was 10**.**20. Calculated 't' test value 13.61 was significant at 0.05 level This data showed that there was significant reduction of stress score.

There was an association between the level of stress and the demographic variables such as stage of cancer, mode of treatment. There was no association between the level of stress and demographic variables such as age, sex, religion, duration of illness.

Conclusion

The following conclusion was drawn from the study

As Cancer patients undergo severe pain and stress, it is necessary to provide pharmacological and non pharmacological interventions to reduce pain and stress. The findings of the study indicated that the Guided imagery is simple, cost effective and easy to administer than any other pharmacological or non pharmacological pain interventions.

Nursing Implications

The implication of the present study has been discussed under the headings as nursing administration, nursing education and nursing research.

Nursing administration

The nurse administrator should take initiative in organizing continuing nursing education programme on non-pharmacological measures for pain and stress to nursing personnel which aids to gain adequate steps in formulating policies, protocols in pain and stress management in cancer patients.

As it was identified from the study findings that Guided imagery was effective in reducing pain and stress all institutions and clinics can encourage the importance of using non- pharmacological intervention like Guided imagery that reduces cancer pain and stress.

Nursing Education

Integration of theory and practice is a vital need and it is important in nursing education. Care of patients with cancer has been included since the beginning of years of nursing education, but focuses on measures against pain and stress are yet to be highlighted. With emerging health care trends nursing education must focus on pharmacological and non-pharmacological innovations to enhance nursing care.

Nurse educators need to lay emphasis in the curriculum on Guided imagery for cancer patients in reduction of pain perception and stress and orient students in imparting knowledge regarding safe and simplest method of reducing cancer pain and stress.

Nursing research

As there are fewer studies related to pain and stress intervention there is need for extensive and intensive studies in this areas. It opens a big avenue for research on the innovative methods of creating awareness, development of teaching centers, among the public regarding benefits of Guided imagery in reduction of pain and stress among cancer patients. As evidence based practice is a recent trend in nursing care, this will further encourage studies on the effectiveness of reducing cancer pain.

Limitation

The limitation of study was as follows-

Convenient sampling technique was used and the sample size was 30. Hence the study findings cannot be generalized to the population.

Recommendations

- The study can be conducted by using a large population to generalize the findings.
- The effectiveness of Guided imagery can be evaluated for other conditions like reducing side effects of chemotherapy, anxiety level.
- Study can be replicated with subjects from different settings.
- A comparative study can also be done between the effectiveness of various non-pharmacological measures for reducing cancer pain.

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APPENDIX – I

Letter seeking permission to conduct the research study at International Cancer Institute

From,

S.Giftshia Sheny,

M.Sc.Nursing II year,

Nehru college of Nursing,

Vallioor.

To,

The Medical Superintendent,

C.S.I Mission Hospital,

Neyoor.

Through,

The Principal,

Nehru Nursing College,

Vallioor.

Forwarded

Dr.V.G.Sudhakaran, M.D., DMRT
Head, Radiation Oncology
International Cancer Center
Neyyoor - 629 802(T.N)

Nehru Nursing College
Principal

Respected Madam/Sir,

Sub: Request for permission to conduct Research study.

As a part of my requirement under the Tamil Nadu Dr.MGR Medical University, I wish to conduct my master's dissertation with the topic"A study to assess the effectiveness of Guided imagery in terms of reduction of pain and stress among terminally ill cancer patients admitted at International Cancer Institute", Neyoor.

I am hereby seeking your consent to do my Research study in your esteemed Hospital, for which I would be ever grateful to you. I assure you that I will follow the Institutional policies during the Research study.

Thanking You,

Yours Faithfully

S.Giftshia Sheny.

Date:

Place:

NEHRU NURSING COLLEGE Vallioor

APPENDIX – II

Letter requesting opinion and suggestion of expert for establishing Content validity of Research tool

From,

Miss.Giftshia sheny. S

II year M.Sc.,[N],

Nehru Nursing College,

Vallioor.

Through,

The Principal,

Nehru Nursing College,

Vallioor.

To

Respected Madam/Sir,

Sub: Requesting opinion and suggestion of expert for establishing Content validity of Research tool

I would like to bring to your kind consideration that as a part of my M.Sc., [N] II year curriculum, I have selected the below mentioned topic for dissertation to be submitted to the Tamil Nadu Dr.MGR Medical University, Chennai as a partial fulfilment of the degree of Master Science in Nursing. My Research topic is "A study to assess the effectiveness of Guided imagery in terms of reduction of pain and stress among terminally ill cancer patients admitted at International Cancer Institute, Neyoor".

With regard I kindly request you to validate my tool for its appropriateness and relevancy. I am enclosing introduction, need for the study, statement of the problem, objectives, demographic variables, performa, Pain and Stress scale. I would be highly obliged and remain thankful for great help if you validate and suggest your opinion.

Thanking you.

Place:

Yours Sincerely,

Miss . Giftshia sheny.S

Forwarded

Nehru Nursing College

principal

APPENDIX III

List of experts to validate the tool

Dr.V.C Sudhakaran, MD., DMRT
Head, Radiation Oncology
International Cancer Center
Neyoor.

Dr.S.S. Sharmila Jansi Rani, M.Sc N., Ph.D
Professor
Christian College of Nursing
Neyoor.

Mrs.Moona.J.Cicil, M.Sc N.,
Assistant Professor
Christian College of Nursing
Neyoor.

Mrs.Sheeba, M.Sc N
Assistant Professor
Christian College of Nursing
Neyoor.

Mrs.Jerlin Priya, M.Sc N,
Principal
Annamal College of Nursing
Kuzhithurai.

APPENDIX – IV

Guided Imagery training certificate

PROF.M.P.VISWAM B.Sc, M.S.W, M.Phil (NIMHANS)
Former H.O.D of Social Work, SSUS Kalady
Consultant Family Counsellor
Cosmopolitan Hospital, TVM-4. Ph:2521252
Attukal Devi Institute of Medical Science, Manacadu, TVM, Ph:0471-2459040
Kerala University Health Centre- 0471-2306422 - Ext.315.

40 PTP Nagar(E) Trivandrum-6950038, (M) 9495360903 - 0471-2360903

CERTIFICATE

This is to certify that **M/s.Giftshia Sheny IIyr M.Sc(N) at Neheru Nursing College Valliyoor, Thirunelvelli, Tamil Nadu,** Who proposes to conduct a study on the effectiveness of guided imagery in terms of Reduction of pain and stress among terminally ill cancer patients at cancer institute Neyoor, Kanyakumari District Tamil Nadu. She has under went 3 days training from 25-05-2014 to 27-05-2014 under my guidance for "guided Imagery" Technique for reduction of pain and stress. She was able to learn the basic knowledge in this regard. The tool to be used in this study is also found useful and appropriate.

ATTUKAL DEVI INSTTITUTE OF MEDICAL SCIENCES LTD. ★ TRIVANDRUM-9

(Prof.M.P.Viswam)
29/05/2014

APPENDIX - V

PART I

DEMOGRAPHIC VARIABLES

Read the following carefully and put a tick mark (✓) for the appropriate option.

1. Age

a. 30 – 40 years ☐

b. 41– 50 years ☐

c. 50 – 60 years ☐

2. Gender

a. Male ☐

b. Female ☐

3. Marital status

a. Married ☐

b. Unmarried ☐

4.Religion

a. Christian ☐

b. Hindu ☐

c. Muslim ☐

5.Duration of illness

a. 6 months ☐

b. 1 year ☐

c. > 1 year ☐

6.Stage of cancer

a. first stage ☐

b. second stage ☐

c. third stage ☐

d. fourth stage ☐

7. Mode of treatment

a. Chemotherapy ☐

b. Radiation therapy ☐

c. Surgery ☐

8. Site of cancer

a. Cancer of cervix ☐

b. Cancer of breast ☐

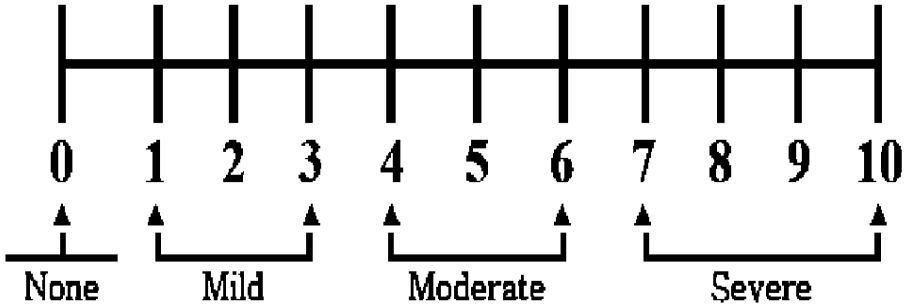
c. Cancer of oral cavity ☐

d. Cancer of larynx ☐

e. Cancer of esophagus ☐

f. Cancer of clitoris ☐

NUMERICAL PAIN RATING SCALE



0- No Pain

1-3 Mild Pain
4-6 Moderate Pain
7-10 Severe Pain

PERCEIVED STRESS SCALE

Question	Yes. definitely	Yes. sometimes	No. not much	No. not at all
I awake early and then sleep badly for rest of night	3	2	1	0
I get very frightened or have panic feelings for apparently no reasons	3	2	1	0
I feel miserable and sad	3	2	1	0
I feel anxious when I go out of house on my own	3	2	1	0
I have lost interest in things	3	2	1	0
I get palpitations or sensations of "butterflies" in my stomach and chest	3	2	1	0
I have good appetite	0	1	2	3
I feel scared and frightened	3	2	1	0
I feel life is not worth living	3	2	1	0
I still enjoy the things I used to	0	1	2	3
I am restless and I cannot keep still	3	2	1	0
I am more irritable than usual	3	2	1	0
I feel as if I have slowed down	3	2	1	0
Worrying thoughts constantly go through my mind	3	2	1	0

scoring: 0-10= mild,11-20 = moderate,20 + =severe